CSIT114/814 Task 4: Quality Building Supply System (8 marks)

Quality Building Supply is a company providing building materials for contractors. A typical sales workflow of Quality Building Supply is as follows:

A contractor buys materials by taking them to the checkout desk for contractors. The clerk enters the contractor's name into the system. The system displays the contractor's information, including current credit standing. The clerk then opens up a new ticket (sale) for the contractor. Next, for each item, the clerk scans in the item to be purchased. The system finds the price of the item and adds the item and its quantity to the ticket. At the end of the purchase, the clerk indicates the end of the sale. The system compares the total amount against the contractor's current credit limit and, if it is acceptable, finalizes the sale. The system creates an electronic ticket for the items, and the contractor's credit limit is reduced by the amount of the sale. Some contractors like to keep a record of their purchases, so they request that ticket details be printed. Others aren't interested in a printout.

A fully developed use case description of "Create a new sale" for the above workflow is provided:

Use Case Name:	Create a new sale	
Scenario:	Create new sale to a contractor (on account sale)	
Triggering Event:	Contractor wants to purchase items.	
Brief Description:	A contractor wants to purchase items. The clerk rings up the items and then adds them to the contractor's account.	
Actors:	Sales clerk	
Stakeholders:	Sales clerk, Accounting department, Sales department	
Preconditions:	Customer account must exist. Inventory items must exist.	
Postconditions:	New sale is created. Sales line items are created and connected to the sale. Customer (contractor) account is updated.	
Flow of Activities:	Actor	System
	1. Clerk enters contractor ID.	1.1 System validates contractor account.
	2. Clerk opens a sale ticket	
	3. Clerk enters each item to the ticket.	3.1 System finds item in inventory, finds price, adds to total.
	4. Clerk indicates the end of the sale.	4.1 System calculates total and adds to contractor account.
	5. If contractor wants receipt, clerk requests receipt.	5.1 System prints receipt.
Exception Conditions:	1.1 If contractor account is out of balance, treat this sale as a cash sale, or stop process and send contractor to accounting clerk. 3.1 If system has information missing, sales clerk calls manager and manually enters information. 4.1 If contractor account balance is over the limit, treat as cash sale, cancel, or send contractor to accounting clerk.	

Based on the above information, complete the following questions in UMLet by using the correct notations:

(1) Develop a UML Activity Diagram for the sales workflow with three roles (i.e. swimlanes): contractor, clerk and system. This workflow documents information from the narrative and the fully-developed use case description (including "Exception Conditions"**)**. (4 marks)

(2) Develop a System Sequence Diagram (SSD) for "Create a new sale". This SSD models interactions between an actor (i.e. clerk) and the system object. The steps in "Exception Conditions" need not to be specified in this SSD. (4 marks)

Deliverables. For each question above, export your solution in UMLet as a PDF document, name it as "<your_name>_<student_no>_ <question_no>.pdf". Submit the PDFs to the correct submission dropbox on Moodle before the deadline.

Note. Deadline is specified in the submission dropbox. This is an individual task. Do not outsource your solution to others.